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(71) Applicant: VOCALTEC COMMUNICATIONS LTD. [IL/IL]; Maskit Street 1, 46733 Herzlia (IL).

(72) Inventors: KAHANE, Opher, Dan; Gilboa Street 30, 44851 Alfe Menashe (IL). PETRACK, Scott; Hildesheimer Street 22, 31115 Jerusalem (IL).

(74) Agent: A. TALLY EITAN - ZEEV PEARL, D. LATZER & CO.; Lumir House, Maskit Street 22, 46733 Herzelia (IL).

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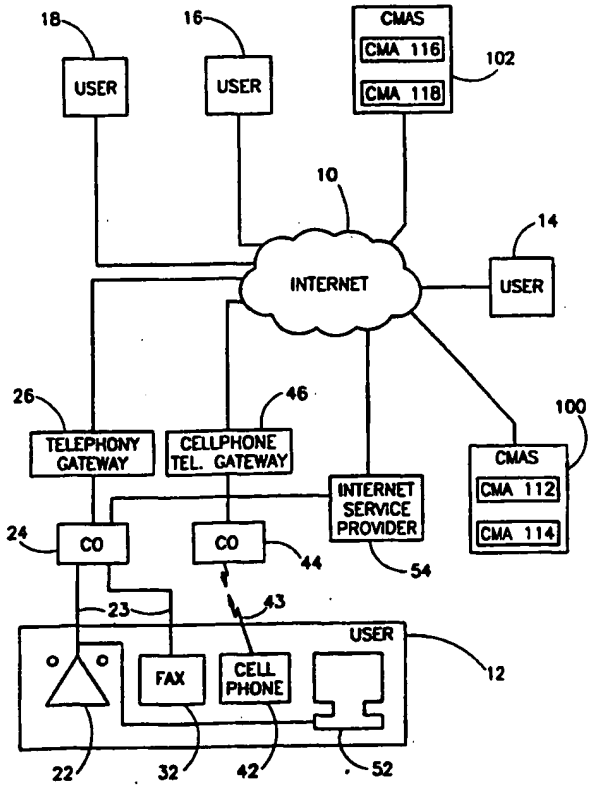
(54) Title: A SYSTEM AND METHOD FOR PERSONAL MULTIMEDIA COMMUNICATION OVER A PACKET SWITCHED NETWORK

(57) Abstract

A method for communicating between users (12, 14,1 6, 18) which employ a plurality of communication devices over a packet switched network (10). The method includes the steps of receiving a precommunication request (202) for a communication device or devices of said recipient to which said communication should be sent, determining in accordance with a communication receipt preferences (204) of the recipient which communication device or devices should receive said communication (206) and transmitting an indication (208) to the requester to which communication device or devices said communication should be transmitted. The communication itself may be a single media or a multimedia communication.



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A SYSTEM AND METHOD FOR PERSONAL MULTIMEDIA COMMUNICATION OVER A PACKET SWITCHED NETWORK

FIELD OF THE INVENTION

The present invention relates to a system and method for personal communication generally and more particularly to a wide area network (WAN) based system in which individual users communicate with call management agents which direct incoming communications in accordance with their personal preferences.

BACKGROUND OF THE INVENTION

Packet switched networks, such as Wide Area Computer Networks (WAN), in particular the INTERNET network, allow users to communicate multimedia information therebetween. For example, the INTERNET PHONE™, commercially available from VocalTec Inc. of New Jersey, USA enables audio conferencing between two parties using two computer stations connected to the INTERNET and equipped with the INTERNET PHONE™ application. In another application, the conventional telephone network is connected to the WAN by telephony gateways so as to enable using both network based communications and conventional telephony over the WAN.

Generally speaking, state of the art systems enable users to use a large number of communication devices as a communication device in a WAN - conventional telephony integrated system. Examples are the INTERNET PHONE™, conventional phone, cell phone, answering machine, facsimile machine, video conferencing equipment, pagers and any application working over the Internet which requires participation of other parties, such as multi-user interactive games. The state of the art systems are deficient in many respects one being that users at present cannot direct incoming calls via the WAN to a device of their own choice.

Another deficiency of current systems exemplified utilizing the example of audio communication is that since telephony and WAN based audio communications are separate the user may not be available, i.e. one of his devices indicates that it is busy while another audio devices he has is actually free and ready to receive audio communications.

SUMMARY OF THE INVENTION

According to one aspect, the present invention is a system which enables users communicating via a WAN to direct incoming communications to a device of their choice.

According to another aspect of the invention the incoming communications may be multimedia communications and the recipient can direct them across media types, one non limiting example being receiving a communication originally directed to a white board by the recipient facsimile machine.

According to another aspect, the present invention provides a method which enables users communicating via a WAN to direct incoming communications to a device of their choice.

According to yet another aspect of the invention, the incoming communications may be multimedia communications and the recipient can direct them across media types, one non limiting example being receiving a communication originally directed to a white board by the recipient facsimile machine.

A further object of the present invention is to provide a system which enables users communicating via a WAN - conventional telephony integrated network to direct incoming communications to a device of their choice.

Yet a further object of the present invention is to provide a method which enables users communicating via a WAN - conventional telephony integrated network to direct incoming communications to a device of their choice.

Yet another object of the present invention is to provide a system which enables users communicating via a WAN - conventional telephony integrated network to receive audio communications substantially at any time through one of their audio communications devices (conventional telephone, cell phone, INTERNET PHONE™).

Still further, another object of the present invention is to provide a method which enables users communicating via a WAN - conventional telephony integrated network to receive audio communications substantially any time through one of their audio communications devices (conventional telephone, cell phone, INTERNET PHONE™).

According to an aspect of the present invention there is provided a method, in a packet switched network having a plurality of users, each of which employing a plurality of communication devices, for receiving communications in accordance with personal recipient preferences which includes the following steps:

a.receiving a precommunication request for at least one communication device of the recipient to which the communication should be sent;

b.determining in accordance with a communication receipt preferences of the recipient which communication device or devices should receive the communication; and

c.transmitting an indication to the communication initiator to which communication device or devices the communication should be transmitted.

In the preferred embodiment, a communication management agent (CMA) of the recipient receives the precommunication request, the recipient communication management agent determines the communication device or devices in accordance to at least the communication receipt preferences stored therein, the CMA indicates to which communication device or devices the communication should be transmitted. Preferably, the communication receipt preferences include which communication device or devices are available for receiving the communication at each time interval from which communication initiators and in which order.

According to the present invention, the communication may be a single media or a multimedia communication. In a preferred embodiment, in case of a multimedia communication, the communication receipt preferences also including cross media receipt preferences.

In accordance with a preferred embodiment of the present invention, the communication receipt preferences may also include redirection of an address to another communication management agent and the method further includes the step of redirecting an address to the another communication management agent.

According to another preferred embodiment, the communication management agent is also operative to identify at any time an available one of the plurality of communication devices operative to communicate the same type of media or a different type of media capable of receiving the communication, whereby the recipient is generally available any time.

In one preferred embodiment, the communication management agent is redirected to one of the communication devices currently used by the user, thereby enabling the user to determine the communication receipt preferences substantially in real time. Alternatively, the communication management agent is remote from the user.

In accordance with yet another preferred embodiment of the present invention, the precommunication request is received from the communication initiator communication devices or from an intermediate device to which any of the call initiator communication devices are connected.

The packet switched network may be a wide area network, the INTERNET wherein the communication management agent resides in a communication management agent server connected to the INTERNET, a local area network or an INTRANET.

In accordance with a preferred embodiment of the present invention, there is provided a communication management agents server (CMAS) connected to a packet switched network, the CMAS including a plurality of communication management agents (CMA) operating in accordance with the methods of the present invention.

In accordance with yet another preferred embodiment of the present invention, there is provided a plurality of communication management agents (CMA) operative in a packet switched network and operative in accordance with the methods of the present invention. In one preferred implementation of the present invention, the CMAs form a directory service of a packet switched network.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be understood and appreciated more fully from the following detailed description taken in conjunction with the appended drawings in which:

Fig. 1 is a schematic block diagrams of a WAN - conventional telephony network including a communications management system, constructed and operative in accordance with a preferred embodiment of the present invention;

Fig. 2 is a schematic block diagram illustration of a preferred method for employing the call management system of the present invention;

Fig. 3 is a schematic block diagram illustration of a preferred method for updating a user communication policy stored in the communications management agent server of the present invention;

Fig. 4 is a schematic illustration of a file including a communication policy of a user;

Fig. 5 is a schematic block diagram illustration of a preferred method for updating the communication device list;

Fig. 6 is a schematic block diagram illustration of an initial registration procedure to the communication management agent server of the present invention;

Fig. 7 is a schematic block diagram illustration of another method for employing the system of the present invention; and

Fig. 8 is a schematic block diagram illustration of cross-media communication in accordance with the present invention.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

Reference is now made to Fig. 1 which illustrates an integrated digital packets - conventional telephony WAN, generally referenced 10. In the preferred embodiment WAN 10 is the INTERNET with accesses of conventional telephony via telephony gateways. WAN 10 has a plurality of subscribers of which only four, referenced 12, 14, 16 and 18 are shown in the illustrated embodiment.

Each subscriber employs a plurality of communication devices to communicate with other subscribers over the INTERNET. As detailed for illustration purposes only for user 12, each user has a telephone 22 and a facsimile machine 32 connected to his telephone company central office (CO) via conventional telephony network 23. CO 24 is connected to the INTERNET via telephony gateway 26, such as the telephony gateway commercially available from VocalTec Inc. of New Jersey, USA. Telephony gateway 26 equipped with the INTERNET PHONE™ gateway application enables telephone 22 to operate as one of the WAN audio transceiving applications.

User 12 also employs a cellular telephone 42 connected to his cellular telephone company central office 44 via cellular network 43 and therefrom via telephony gateway 46 to the INTERNET. User 12 also employs a computer 52 connected to the INTERNET via an INTERNET service provider server 54, such as via the America Online of USA server. Computer 52 is preferably equipped with the INTERNET PHONE™ application for audio conferencing and with corresponding application for video conferencing and the like.

According to the present invention, a precommunication request of an incoming communication to user 12 is directed to a personal Communication Management Agent (CMA) in a Communication Management Agent Server (CMAS) 100, constructed and operative as described in detail hereinbelow. The CMA receives this precommunication request from a communication device employed by the call initiator or from an intermediate device to which communication devices the call initiator users are connected. A nonlimiting example for an intermediate device is a communication center (CC), i.e. the central office or the telephony gateway to which any of the communication devices 22, 32, 42 or 52 are connected.

The recipient CMA receiving the precommunication request from the call initiator or the intermediate device, determines to which device or devices the

communication itself, being a single media or a multimedia communication, should be directed, according to a recipient communication receipt preferences. The CMA indicates same to the call initiator or the intermediate device which transmits accordingly the communication itself to the recipient device or devices.

In the present invention, each user establishes a personal CMA and modifies the content thereof according to his preferences as described in detail hereinbelow.

In an alternative embodiment, a service provider can modify the content of the CMA on behalf of its subscribers in accordance with predetermined communication receipt preferences defined by the subscribers or in accordance with its own communication policy.

In yet another alternative embodiment, a group of users are connected to a single CMA which directs incoming communications to the preferred communication device or devices of each of the users connected to the CMA.

While the present invention is described with respect to a single user connected to a CMA it is equally applicable to a plurality of users connected to a single CMA or to a service provider modifying the CMA. These two latter embodiments are not further described.

The operation of the network of Fig. 1 is now described with reference to Fig. 2 and to a nonlimiting example in which user 18 initiates a call to user 12 which is therefore the recipient.

In the illustrated example, once user 18 initiates a call to recipient 12, a communication request including the CMA address of recipient 12 is provided to CMAS 100 which receives the CMA address as indicated by step 202.

In step 204, CMAS 100 associates the received CMA address with CMA 112.

In step 206, CMAS 100 retrieves the file representing the current communication receipt preferences of recipient 12 and provides user 18 who initiated the call or the Communication Center (CC) thereof with a list of communication devices or network addresses to which the call should be transmitted (step 208). The actual communication is then being transmitted to the preferred device or devices of recipient 12 (step 210).

An example of communication receipt preference is receiving all audio communications whether originated from a computer of user 18 employing the INTERNET PHONE™ application or from its telephone or cellular telephone to cellular telephone 42.

While communicating with recipient 12, user 18 has to know CMA address of recipient 12. CMA addresses may be stored in any INTERNET guide in order to enable any user, like user 18 to find the recipient CMA address in case user 18 does not know it. Examples are the INTERNET white page guides, commercially available from a number of vendors, such as the white page service of Infospace of Seattle, Washington, U.S.A. which may include also CMA addresses.

Once the communication initiator (user 18) receives the CMA address of recipient 12, initiator (user 18) needs to know the address of the CMAS 100 in which CMA 112 resides. In the Internet network, the CMAS 100 address is a TCP/IP address and the CMA 112 address is either an E-mail like address or a numerical address, such as an E.164 address.

It will be appreciated that the conversion between the CMA address and the CMAS address can be done in any suitable way known in the art. In the Internet, one can use an application converting E-mail addresses to E-mail server addresses adapted to convert CMA addresses to CMAS addresses.

It will be appreciated that while the operation of the network of Fig. 1 has been described with respect to an initiator (user 18) and recipient (user 12) any user may call any other user and receive communications therefrom. It will further be appreciated that while reference has been made to user 18 who receives the list of communication device or devices to which the call should be directed, any of the CC's of user 18 may actually receive the information of the preferred device of recipient 12 to which the actual communication should be directed.

For example, if user 18 employs his telephone to call user 12, the gateway thereof may call CMAS 100 and direct the actual communication originated by user 18 to the preferred device of user 12.

In an alternative embodiment, CMA 112 does not provide user 18, his telephony gateway or central office (CO) with information containing the preferred device or devices to which the actual communication should be directed but rather redirects the request received from user 18 to another CMA of user 12.

For example, if recipient 12 activates his computer while receiving a call from user 18 he may provide CMAS 100 with an indication to redirect all incoming precommunications to his personal CMA located in his computer so as to control and adjust his communication receipt preferences on line from his computer.

In another preferred embodiment, the personal CMA may reside within any communication device carried by the recipient (user 12), two non limiting examples being a cellular phone and bi-directional pager. In this preferred embodiment, all precommunication requests to the recipient (user 12) are directed to the communication device he currently holds and any such precommunication request activates a pop up message on the communication device, thus enabling recipient 12 to determine on the fly in substantially real time to which communication device the communication itself should be directed. For example, the user may request all incoming audio communication via the INTERNET PHONE to be directed to his cellular phone while any image associated therewith should be directed to his facsimile machine as described in detail with reference to Fig. 8 hereinbelow.

It will be appreciated that the communication policy of each user can be modified at the user's request as illustrated in Figs. 3 and 4 to which reference is now made. Figs. 3 and 4 are a schematic block diagram illustration of a preferred method for updating a user, say user 12's communication policy stored in CMA 112 and a schematic illustration of a non limiting file including the user's current communication policy.

The update operation starts with the user defining, preferably but not necessarily off line, a new communication policy as indicated by step 300 or by retrieving the existing policy file from the CMA 112. For example, while the current policy is to receive all audio communication in cellular phone 42, the new policy may be to receive in the next three days all audio communications from a list of users to any of his cellular phone 42 or computer 52 if it is on-line while receiving all other audio communications to his telephone answering machine.

In a preferred embodiment, the new or retrieved policy file is edited (step 302) in the computer 52. A nonlimiting example of a policy file is policy file 400 illustrated in Fig. 4. In the non limiting example of Fig. 4, policy file 400 includes the available communication devices (406) for receiving communications, of one or more media type during, each time interval (402) for certain call initiators (404) and a different available device (410) for certain second call initiators (408). Policy

file 400 also includes optional redirection of all communication requests to another CMA address (412) as described in detail herein below. The user then connects to his CMA as indicated by step 304 and transmits the current updated policy file to CMA 112 (step 306). CMAS 100 stores the new file as indicated by step 308 and CMA 112 starts operating in accordance with the new policy (step 310) as described hereinabove.

It will be appreciated that the user can define a default policy file so if the current policy file includes a time limitation, CMA 112 will return to its default mode of operation once the time for the current communication policy (three day in the example described above) expires.

It will be appreciated that the user can update CMA 112 in any other suitable manner, such as updating on line a WEB page of CMA 112.

It will also be appreciated that the user may define a scan policy to the CMA. In such definition, the CMA, say CMA 112, scans in which device from a number of possible devices of equal preference the user answers and indicates that the communication itself should be directed to that device.

It will further be appreciated that the user may not only update its preferred communication policy but also the list of communication devices he operates as illustrated in Fig. 5 to which reference is now made.

In a preferred method for updating the communication devices list the user edits an updated list of communication devices (step 500), connects to his CMA (step 502), transmits the updated list (step 504) which is being stored in the CMAS in which the user's CMA is located (step 506). Operation then continues with the updated list of communication devices (step 508). Similarly, the user can edit a new list or modify the current device list.

In another preferred embodiment of the present invention the updating of the communication devices list is done automatically. For example, as part of the installation procedure of the INTERNET PHONE™ application, the user may configure the application such that it will automatically communicate with its CMA and update the list of available communication devices.

Similarly, one may set any of the communication devices to expire in a certain time or upon the occurrence of a particular event.

Reference is now made to Fig. 6 which illustrates a preferred method for establishing a CMA in a CMAS.

In step 600 a WAN user, such as user 12 connects to a WEB page of CMAS 100. In step 602, user 12 fills in personal details, such as telephone number, e-mail address and the like. In step 604, CMAS 100 defines a new CMA (CMA 112 in the present example) and provides its address to user 12, preferably with a means of providing security , such as a password. If a password is required, user 12 then uses his password whenever he connects to CMA 112, such as when updating his communication policy (step 304, Fig. 3) or the list of communication devices (step 502, Fig. 5).

A particular advantage of the present invention is that it provides a communication device independent communications system, i.e. communication is directed to a user and not to a communication device as is the current situation both with conventional telephony and network communication applications.

This advantage enables a user to initiate a conference call with any number of other network users employing his CMA. In a preferred embodiment of the present invention, a user may indicate to a conferencing server the other users to confer with, wherein the conferencing server connects to each user via their respective CMA as decided hereinabove.

Reference is now made to Fig. 7 which illustrates a method for using the CMA of the present invention for directing phone calls at substantially any time, to users having a single telephone line and who use it for long time periods, such as for browsing the INTERNET. . According to the present invention, any user using the INTERNET PHONE™ application may be accessed from any audio communication device substantially at any time.

The method generally includes the step of setting, referenced 700, and the step of operating designated 710.

The setting step 700 includes the step 702 of connecting to the INTERNET via the single telephone line the user has, the step 704 of executing the INTERNET PHONE™ application resulting in the user being connected to the INTERNET and therefore his single telephone line being busy. Then, the current IP address is updated in the CMA as indicated by step 706.

In the operating step 710, a user, say user 18, initiates an audio communication to user 12 who is connected to the INTERNET as described for the setting step 700 and referenced 712. Central office 24 detects that line 23 of user 12 is busy as indicated by 714 and finds the CMA address of user 12 as

indicated in step 716. The CMA address is found by associating the users telephone number with his CMA in any suitable data base available to the CC. CMA 112 provides the IP address of user 12 executing the INTERNET PHONE™ application to gateway 26 as indicated by 720 so as to enable receipt of audio communications when the conventional telephone line is busy as indicated by step 720.

It will be appreciated that the present invention is not limited by what has been described hereinabove and that numerous modifications, all of which fall within the scope of the present invention, exist. For example, while the present invention has been described with reference to a personal CMA, the method and system of the present invention is not limited thereto and is similarly applicable to CMAS utilized by the telephony gateways to function efficiently, such as in accordance with Least Cost Routing (LCR) and availability considerations. For example, while user 18 (Fig. 1) calls user 12 the actual communication can be directed through various gateways other than gateways 28 or 46 if the transmission is more efficient.

Reference is now made to Fig. 8 which illustrates yet another preferred embodiment of the present invention. In the embodiment of Fig. 8 communications of one media type are directed to a communication device of a different media type. Fig. 8 provides a nonlimiting example of the method of Fig. 2 for cross media communication receipt for the network of Fig. 1. In the illustrated embodiment, user 18 initiates a communication to recipient (user 12), the communication is an integrated audio communication and white board communication. In step 802 call initiator 18 transmits a precommunication request to CMA 112. In step 804, the CMA of the recipient (user 12) receives the precommunication request initiated by user 18 and determines according to the receipt preferences policy file of user 12 that the audio part of the communication should be directed to telephone 22 of the recipient (user 12), while the white board part of the same communication should be directed to the facsimile machine 32 of recipient 12 (according to steps 202-206 of Fig. 2). In step 806, CMA 112 provides an indication to the precommunication requester call initiator (user 18) that the audio part should be directed to telephone 22 and the white board part to facsimile 32. Finally, in step 808, the recipient (user 12) receives the audio part of the communication via his phone 22 and the white board part thereof via his facsimile machine 32, sequentially if he has one telephone line and simultaneously if he has two telephone lines.

It will be appreciated that while the preferred embodiments of the present invention has been described with respect to a Wide Area Network and more specifically with respect to the INTERNET, it is equally applicable to any packet switched network, such as Local Area Networks (LANs) and INTRANETS.

It will also be appreciated that the CMAs of the present invention can form a new type of a directory service in a packet switched network. For example, a plurality of CMAs, each for at least one user can replace current directory inquiry services of conventional telephone services and may also be used instead of current white pages directory services.

It will also be appreciated by persons skilled in the art that the present invention is not limited to what has been particularly shown and described hereinabove. Rather, the scope of the present invention is defined only by the claims that follow:

CLAIMS

1. In a packet switched network having a plurality of users, each of which employing a plurality of communication devices, a method for receiving communications in accordance with personal recipient preferences, the method comprising:

receiving a precommunication request for at least one communication device of a recipient address to which the communication should be sent;

determining in accordance with a communication receipt preferences of said recipient which communication device or devices should receive the communication; and

transmitting an indication to a communication initiator to which communication device or devices said communication should be transmitted.

2. A method according to claim 1 wherein a communication management agent (CMA) of the recipient receives the precommunication request, said recipient communication management agent determines the communication device or devices to receive the communication in accordance with at least the communication receipt preferences stored therein, and said a communication management agent indicates to which communication device or devices the communication should be transmitted.

3. A method according to claim 2 wherein said communication receipt preferences include which communication device or devices are available for receiving said communication at each time interval from which communication initiators and in which order.

4. A method according to claim 3 wherein said communication is a multimedia communication, said communication receipt preferences also including cross media receipt preferences.

5. A method according to claim 3 wherein said communication receipt preferences further include redirection of said address to another communication management agent and the method further

comprising the step of redirecting said address to said another communication management agent.

6. A method according to claim 2 wherein said communication management agent is also operative to identify at any time an available one of said plurality of communication devices operative to communicate the same type of media or a different type of media, capable of receiving said communication, whereby said recipient is generally available any time.

7. A method according to claim 2 wherein said communication management agent is remote from said user.

8. A method according to claim 5 wherein said communication management agent is redirected to one of said communication devices currently used by said user, thereby enabling said user to determine said communication receipt preferences substantially in real time.

9. A method according to claim 1 wherein said precommunication request is received from said communication initiator communication devices or from an intermediate device to which any of said communication initiator communication devices are connected.

10. A method according to any of claims 2-9 wherein said packet switched network is the INTERNET, and wherein said communication management agent resides in a communication management agent server connected to the INTERNET.

11. A communication management agents server (CMAS) connected to a packet switched network, said CMAS including a plurality of communication management agents (CMA), each CMA storing a communication receipt preferences of at least one respective recipient and operative to receive a precommunication request for at least one communication device of said recipient to which said communication should be sent, to determine in accordance with a communication receipt preferences of said recipient which communication device or devices should receive said communication and to transmit an indication to a communication

initiator to which communication device or devices said communication should be transmitted.

12. A communication management agents server according to claim 11 wherein said packet switched network is a wide area network, the INTERNET, a local area network or an INTRANET.

13. A communication management agents server according to claim 11 wherein said communication receipt preferences include which communication devices are available for receiving said communication at each time interval from which communication initiators and in which order.

14. A communication management agents server according to claim 13 wherein said communication is a multimedia communication, said communication receipt preferences also including cross media receipt preferences.

15. A communication management agents server according to claim 13 wherein said communication receipt preferences further include means for redirection of said address to another communication management agent remote from said CMAS.

16. A communication management agents server according to claim 11 wherein said CMA is also operative to identify at any time an available one of said plurality of communication devices operative to communicate the same type of media or a different type of media capable of receiving said communication, whereby said recipient is generally available any time.

17. A communication management agents server according to claim 11 further comprising means for receiving said precommunication request from said communication initiator device or from an intermediate device to which any of said call initiator communication devices are connected.

18. A plurality of communication management agents (CMA) operative in a packet switched network, each communication management agent storing a communication receipt preferences of at least one respective communication recipient and operative to receive a precommunication request for a communication device or devices of

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said recipient to which a communication should be transmitted, to determine in accordance with said communication receipt preferences of said recipient which communication device or devices should receive said communication and to transmit an indication to the requester to which communication device or devices said communication should be transmitted.

19. A communication management agent according to claim 18 residing in a device currently used by said recipient, thereby enabling said recipient to determine said receipt preferences substantially in real time.

20. A communication management agent according to claim 18 wherein said packet switched network is a wide area network, the INTERNET network, a local area network or an INTRANET.

21. A communication management agent (CMA) according to claim 18 wherein said communication management agent is operative to identify at any time an available one of said plurality of communication devices operative to communicate the same type of media or a different type of media capable of receiving said communication, whereby said recipient is generally available any time.

22. A plurality of communication management agents according to claim 18 forming a directory service of a packet switched network.

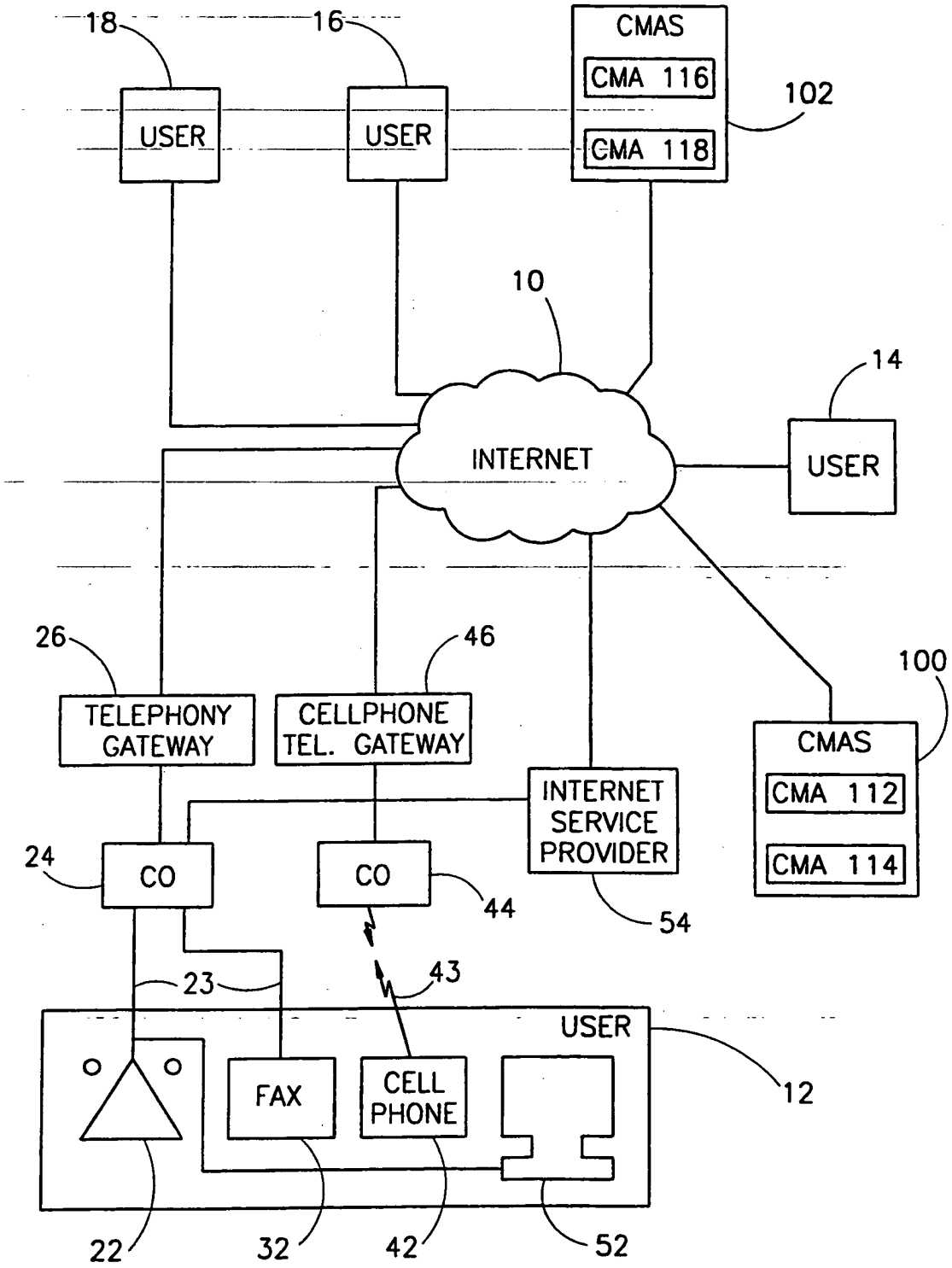
18
16
CMAS
CMA 116
CMA 118
102
USER
USER
10
14
INTERNET
USER
26
46
100
TELEPHONY GATEWAY
CELLPHONE TEL. GATEWAY
CMAS
CMA 112
CMA 114
INTERNET SERVICE PROVIDER
24
CO
CO
44
54
23
43
USER
12
FAX
CELL PHONE
22
32
42
52

FIG. 1

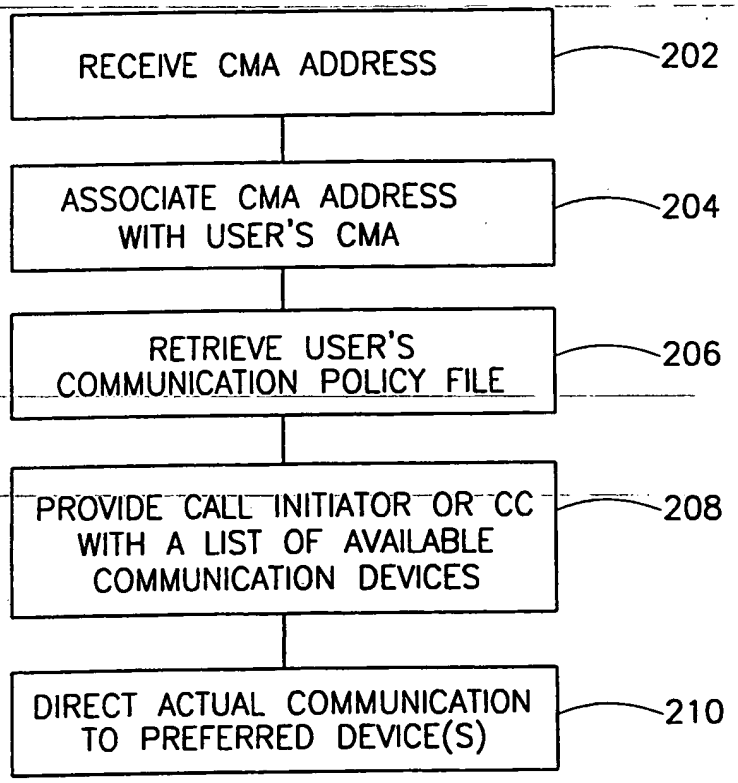
RECEIVE CMA ADDRESS
202
ASSOCIATE CMA ADDRESS WITH USER'S CMA
204
RETRIEVE USER'S COMMUNICATION POLICY FILE
206
PROVIDE CALL INITIATOR OR CC WITH A LIST OF AVAILABLE COMMUNICATION DEVICES
208
DIRECT ACTUAL COMMUNICATION TO PREFERRED DEVICE(S)
210

FIG.2

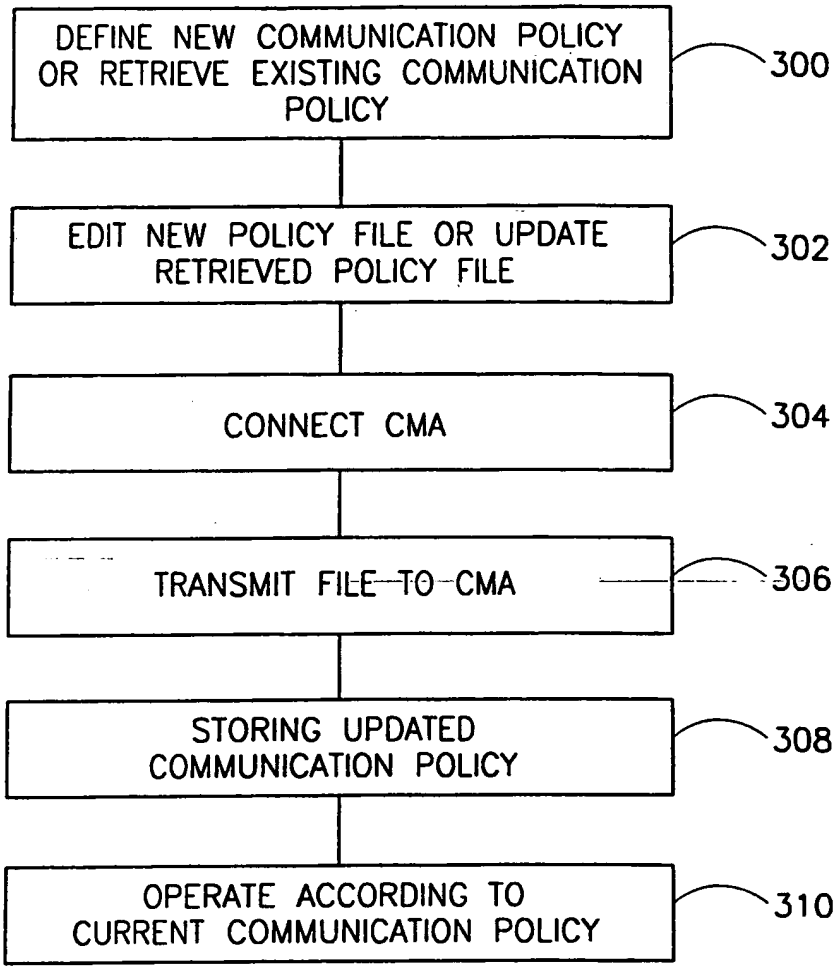
DEFINE NEW COMMUNICATION POLICY OR RETRIEVE EXISTING COMMUNICATION POLICY
300
EDIT NEW POLICY FILE OR UPDATE RETRIEVED POLICY FILE
302
CONNECT CMA
304
TRANSMIT FILE TO CMA
306
STORING UPDATED COMMUNICATION POLICY
308
OPERATE ACCORDING TO CURRENT COMMUNICATION POLICY
310

FIG.3

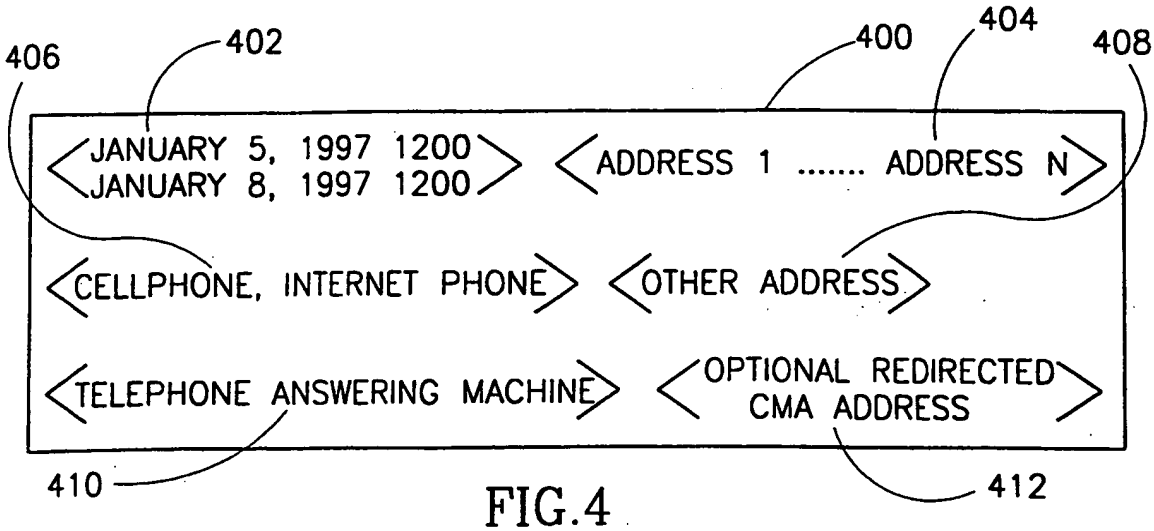
406
402
400
404
408
JANUARY 5, 1997 1200
JANUARY 8, 1997 1200
ADDRESS 1 ..... ADDRESS N
CELLPHONE, INTERNET PHONE
OTHER ADDRESS
TELEPHONE ANSWERING MACHINE
OPTIONAL REDIRECTED CMA ADDRESS
410
412

FIG.4

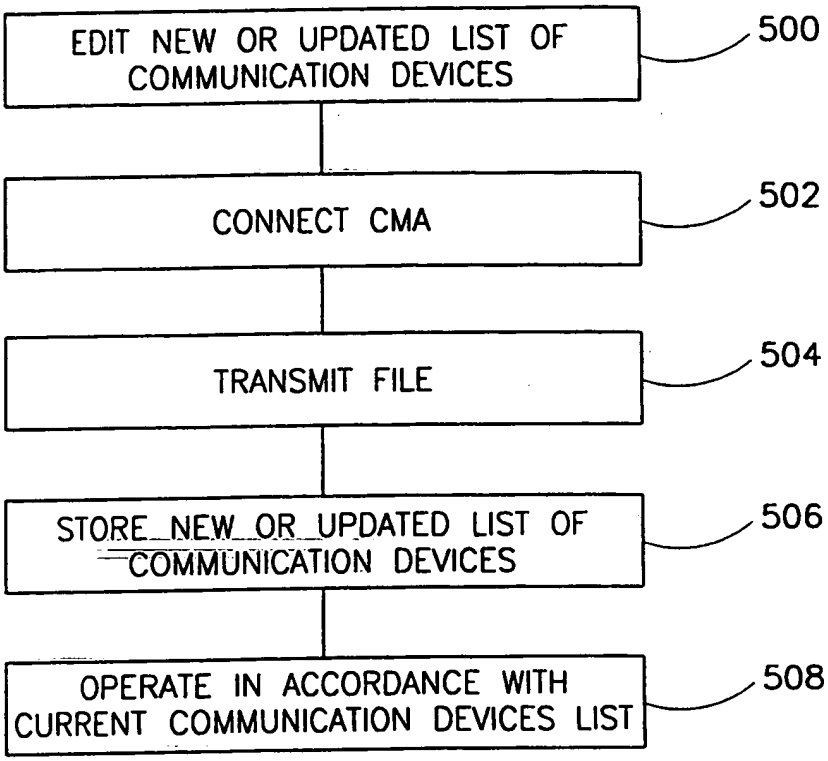
EDIT NEW OR UPDATED LIST OF COMMUNICATION DEVICES
500
CONNECT CMA
502
TRANSMIT FILE
504
STORE NEW OR UPDATED LIST OF COMMUNICATION DEVICES
506
OPERATE IN ACCORDANCE WITH CURRENT COMMUNICATION DEVICES LIST
508

FIG.5

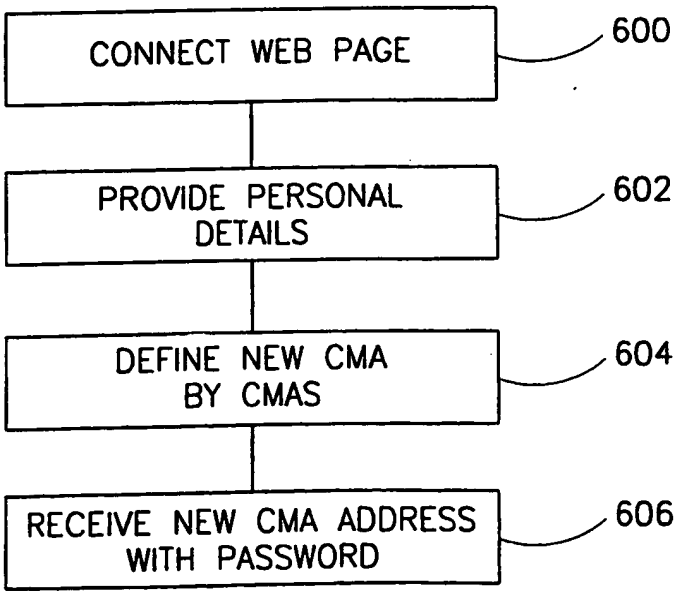
CONNECT WEB PAGE
600
PROVIDE PERSONAL DETAILS
602
DEFINE NEW CMA BY CMAS
604
RECEIVE NEW CMA ADDRESS WITH PASSWORD
606

FIG.6

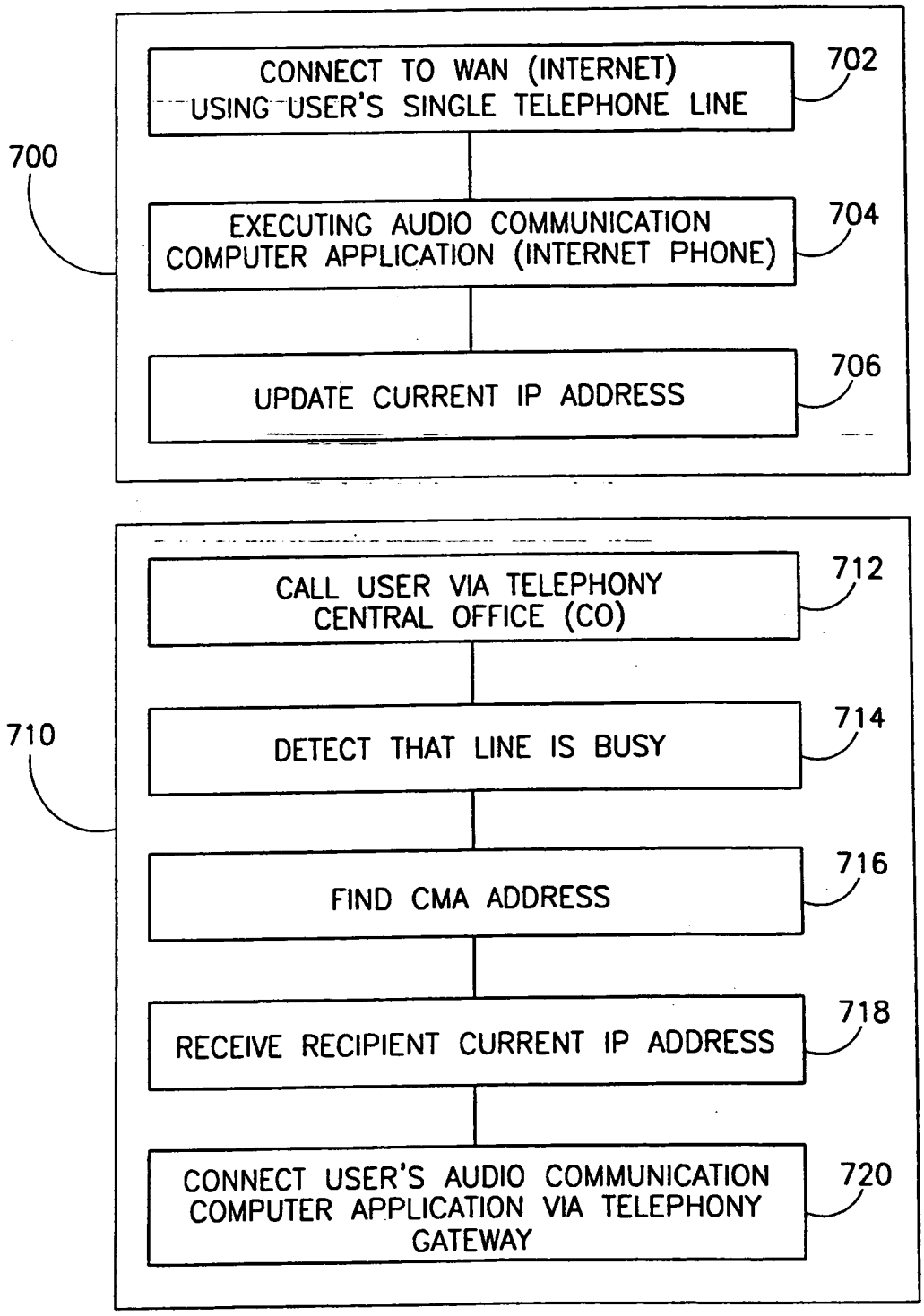
700
CONNECT TO WAN (INTERNET) USING USER'S SINGLE TELEPHONE LINE
702
EXECUTING AUDIO COMMUNICATION COMPUTER APPLICATION (INTERNET PHONE)
704
UPDATE CURRENT IP ADDRESS
706
710
CALL USER VIA TELEPHONY CENTRAL OFFICE (CO)
712
DETECT THAT LINE IS BUSY
714
FIND CMA ADDRESS
716
RECEIVE RECIPIENT CURRENT IP ADDRESS
718
CONNECT USER'S AUDIO COMMUNICATION COMPUTER APPLICATION VIA TELEPHONY GATEWAY
720

FIG.7

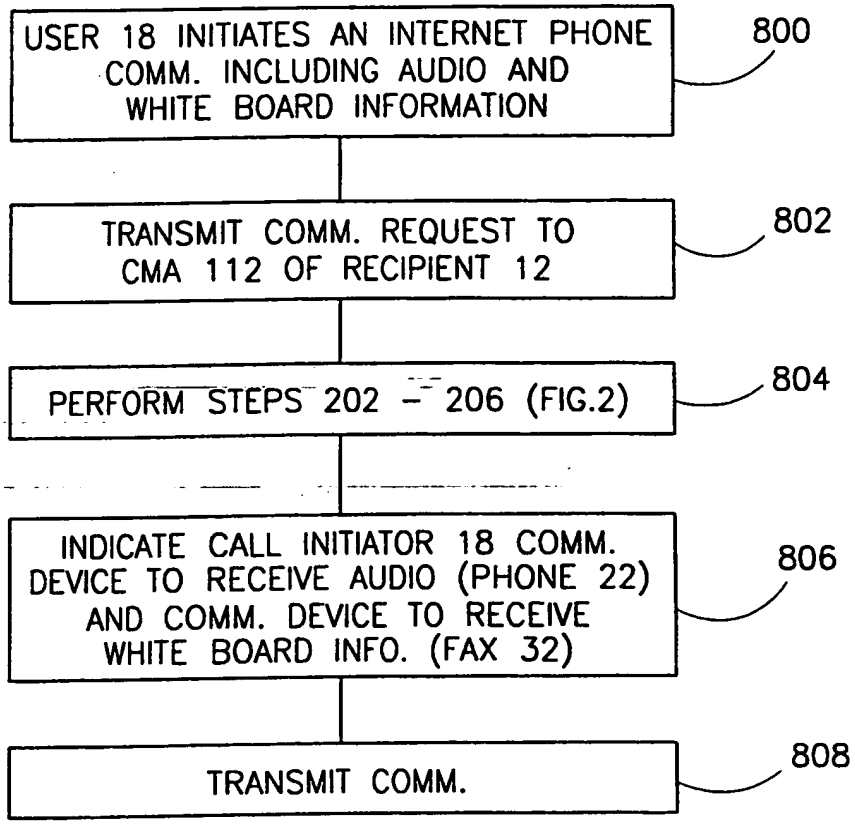
USER 18 INITIATES AN INTERNET PHONE COMM. INCLUDING AUDIO AND WHITE BOARD INFORMATION
800
TRANSMIT COMM. REQUEST TO CMA 112 OF RECIPIENT 12
802
PERFORM STEPS 202 – 206 (FIG.2)
804
INDICATE CALL INITIATOR 18 COMM. DEVICE TO RECEIVE AUDIO (PHONE 22) AND COMM. DEVICE TO RECEIVE WHITE BOARD INFO. (FAX 32)
806
TRANSMIT COMM.
808

FIG.8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL97/00334

A. CLASSIFICATION OF SUBJECT MATTER
IPC(6) :H04L 12/28, 12/56; H04M 3/42
US CL :370/389
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 370/352, 355, 389, 390, 402, 431, 524; 370/93.01, 201, 211

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS (packet switched network, internet, communication management agent server, CMA, CMAS)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	US 5,604,737 A (IWAMI et al) 18 February 1997, col. 4, line 26 to col. 5, line 6; col. 7, line 62 to col. 9, line 10.	1-22
Y, P	US 5,636,216 A (FOX et al) 03 June 1997, col. 5, lines 58-65.	1-22
Y, P	US 5,654,957 A (KOYAMA) 05 August 1997, col. 3, line 45 to col. 4, line 6; col. 7, lines 13-64.	1-22
A	US 5,455,568 A (ICHIHASHI et al) 03 October 1995.	1-22

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Date of the actual completion of the international search
06 FEBRUARY 1998

Date of mailing of the international search report
01 APR 1998

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703) 305-3230

Authorized officer
WELLINGTON CHIN
Telephone No. (703) 305-3900

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